

# Basic Proactive DMSMS Management with Anti-Counterfeiting Considerations



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# Workshop Overview



- **DMSMS - What's That?**
- **Helpful Information**
- **Introductions**
- **Workshop Topics**
- **Importance of DMSMS**
- **Criteria for Success**
- **General History**
- **DMSMS and You**





# Helpful Information



- **About the Instructor**
- **Contact Information**
- **Web and Email**
- **Messages**
- **Additional Information**







# About You



- **Name**
- **Current Assignment**  
Program  
Military Installation
- **Experience or Background**  
Civil Servant  
Military  
Contractor





# Topics to Discuss

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- Management Buy-in
- Teams, Tools, & Training
- Data and the BOM
- Financial Resources
- SD-22 DoD DMSMS Guidebook



# Importance of DMSMS



- **DMSMS is important because:**

If it isn't managed, it will overwhelm you with expensive problems

It Impacts warfighting and readiness capability

It's Not just electronics are affected but all components of a system

- **The Program Manager is the first line of defense**





# What is it?



- DMSMS is:  
“...loss or impending loss of manufacturers ... or suppliers of items that endanger a weapon system's ... support capability.”
- The DoD Requirement:  
“DoD Components shall proactively take ... actions to identify and minimize the DMSMS impact on weapon system’s ... logistics support efforts.”
- DMSMS and Obsolescence  
are terms used interchangeably even though there is “technically” a difference.



Source: DOD 4140.1-R





# General DMSMS History



- **DMSMS problems occur mainly with electronic components, but DMSMS affects all material categories**
- **DMSMS can occur in any phase of a program's life cycle**
- **Not limited to weapons systems**
- **Extends to all products that could jeopardize military readiness**





# For Discussion Purposes



## Boxes and Boards:

- **Boxes:**
  - Navy uses Weapons Replaceable Assembly (WRA)
  - Air Force uses Line Replaceable Units (LRU)
- **Boards (Circuit Card Assemblies - CCAs):**
  - Navy uses Shop Replaceable Assembly (SRA)
  - Air Force uses Shop Replaceable Units (SRU)





# Some Issues



- **Current DMSMS Impediments**

Lack of experience or trained DMSMS personnel and support

Not enough human resources to assign to all DMSMS duties

Lack of indentured Bills-of-Materials (BOMs)

**Never enough money for investments:**

- Teams
- Tools
- Analysis
- Solutions





# Common Myths:



- There is an “expert person or organization” that knows everything about DMSMS.
- Buy my tool, it solves all of your problems.
- There is a single solution for a DMSMS issue.





# DoD DMSMS Organization



## OSD Leadership

Director, Systems Engineering Directorate

Director, Mission Assurance Division

Director, DSPO

Program Manager, DMSMS

## Working Group Membership

OSD

Army

Marine Corps

Navy

Air Force

DLA

MDA

## Advisory Members

## Associate Members

## Industry Liaison

## Working Group Committee Structure

Outreach

Common Use Tools

Conference

Foreign Military Sales Data

## Advisory Members

DMEA

GIDEP

DAU

DCMA

## Associate Members

DoC

FAA

NASA

USCG

DoE

AIA





# DoD DMSMS Program Objectives

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- Define a **proactive DMSMS management process** that a PM can use to build an effective DMSMS program
- Define DMSMS support **metrics to measure the effectiveness** of a proactive DMSMS program
- Promote **cost-effective supply chain management** integrity through DMSMS problem solution at the lowest (cost, time, functional) level
- Promote the exercise of **best practices** throughout the DMSMS management cycle



# DLA DMSMS Partners

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- Support All US Services and Federal Agencies
- Government and Industry Data Exchange Program (GIDEP)
- DoD DMSMS Working Group
- Interoperability efforts with the UK Defence Logistics Organization (DLO) and the Component Obsolescence Group (COG)
- NATO Maintenance and Supply Activity (NAMSA)



# Proactive DMSMS Management



- **Keys to success**
  - Management “buy-in” or commitment
  - Program centered around a team, tools, & training
  - Bill-of-Material (BOM)
  - Financial resources





# Management Buy-In





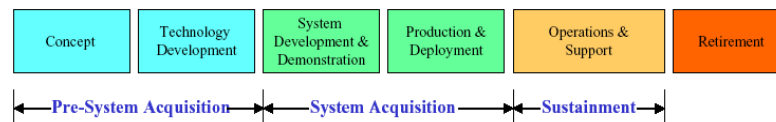
# Overview



- Introduction, and Background
- Documents and Intensity Levels
- Standard System Life Cycle
- Legacy Systems
- Importance of Being Proactive



Resolution	Pre-System Acquisition	System Acquisition	Sustainment
Open Systems Architecture	X		
Modification or Redesign	X	X	
Redefined Requirement	X	X	X
Contractual Items Substitution	X		
Modernization Through Source	X	X	X
Design Techniques Breakout	X		
Design Buy		X	X
Life-Of-Type Buy		X	X
Contractor Requirement or Availability Guarantee		X	X
Existing Stock			X
Alternate Source			X
Existing Substitute			X
After-Market Vendor			X
Emulation			X
Government Organic Fabrication Facility			X
Redesign (Major & Minor)			X
Technical Refresh or Early Warning databases			X
HDL - Life-Cycle Partnership			X







# Introduction



- **What is Management Buy-in?**
- **Empowering your subordinates**
  - Listening to their concerns or ideas
  - Empower them by “blessing” their plans
  - Otherwise generally support your subordinates

If your boss doesn't support you in the same manner, then it's likely you won't be as efficient as you, and he or she would like!



**If you don't believe in the way a subordinate PM is setting up his or her DMSMS program, you're not likely to support it!**

**Two primary reasons to interact and support your subordinates:**

You and your team's efforts directly affect the warfighter

You are a public servant and are spending the taxpayer's money





# DOD DMSMS Publications



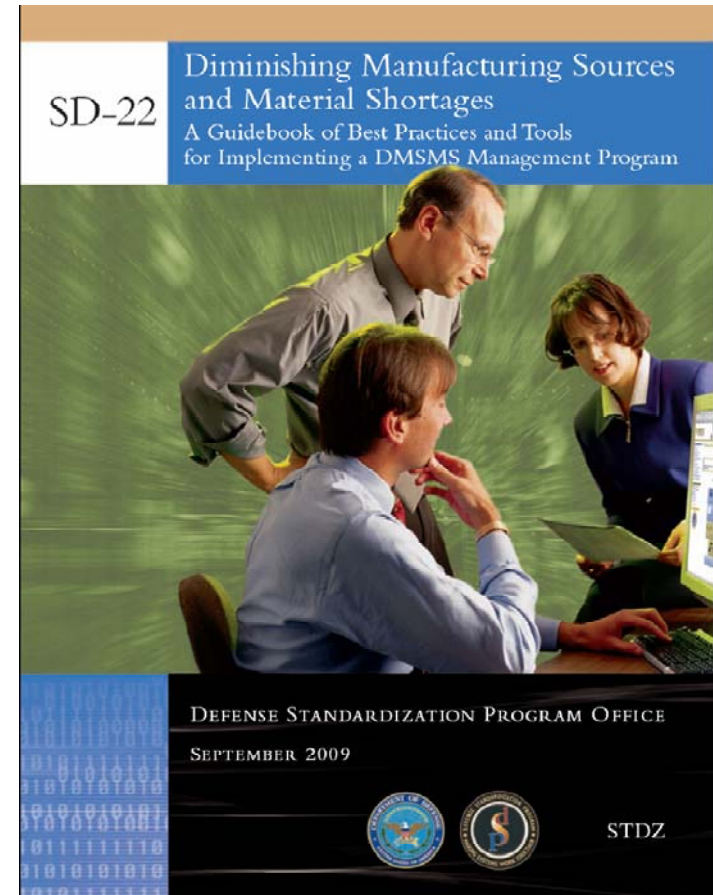
- DOD Directive 5000.1, “The Defense Acquisition System,” 2003.
- DOD Instruction 5000.2, “Operation of the Defense Acquisition System,” 2003.
- Defense Acquisition Guidebook (DAG)
- DOD 4140.1-R, “DOD Supply Chain Management Regulation”, 2003.
- Total Life Cycle System Management (TLCSM), “Plan of Action and Milestones”, 2003.
- Performance Based Logistics (PBL): “A Program Manager’s Product Support Guide”, 2004.
- **DOD DMSMS Guidebook (SD-22)**



# DOD DMSMS Guidebook



- SD-22 DoD DMSMS Guidebook
  - “Official” DOD guide for performing proactive DMSMS
  - Supersedes many old DMSMS reference documents





# OSD Intensity Levels

## (Success Measures)

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- **Level 1—practices (largely reactive) sufficient to resolve known obsolescence problems**
- **Level 2—practices (more proactive) sufficient to mitigate the risk of future obsolete items**
- **Level 3—proactive practices sufficient to mitigate the risk of obsolescence when there is a high-probability opportunity to enhance supportability or reduce TOC (these proactive activities may require additional program funding)**
- **Level 4—proactive practices implemented during the conceptual design of a new system and continued through its production and fielding.**





# Intensity Level Criteria



Intensity Level 1	Intensity Level 2	Intensity Level 3	Intensity Level 4
DMSMS program established and funded	All Level 1 practices implemented	All Level 2 practices implemented	All Level 3 practices implemented
DMT formed	BOM processed through a predictive tool	DMSMS life-cycle costs and cost avoidance estimates developed	Technology road mapping used
DMT trained in • DMSMS fundamentals and • DMSMS for executives	Results of predictive tool output analyzed	DMT trained in • DMSMS essentials, • DMSMS case studies, and • advanced DMSMS	System upgrades planned
DMSMS program plan written and approved	DMSMS solution data-base established		Technology transparency attained
Complete BOM developed with periodic reviews planned to keep it current	Budget established to fund future obsolescence solutions	Funding shortfall and impact identified and communicated to decision makers	Accessibility realized for alternate source development (VHDL, emulation, MEPs)
Solutions to near-term obsolescence problems implemented	Website established	For legacy systems, DMSMS tasking and data requirements included in applicable contracts	
For new acquisitions, DMSMS tasking and data byproducts inserted in the development, production, or support contracts	Method established to prioritize LRUs/WRAs for DMSMS risk	Circuit design guidelines established	
		Technology assessment and insertion under way	
		DMSMS metrics established <sup>a</sup>	
		Electronic data interchange used	



# Total Life Cycle System Management (TLCSM)



- The goal is to achieve the best performance and readiness, while reducing the overall operations and support costs
- Performance-based Logistics (PBL) is the preferred DOD strategy

Entails buying a support package to support the system for its life cycle

The idea behind this strategy is standardization of common policies, procedures, tools, and terms

Lack of standardization is causing a very fragmented approach to DMSMS management, with inconsistent outcomes

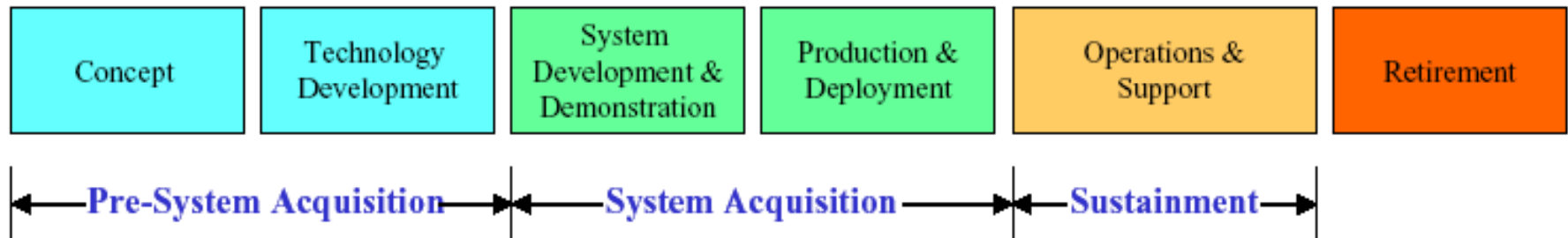
Identify and standardize on the “best practice” methods and policies



# The Standard System Lifecycle



- To better understand DMSMS we need to look at the Standard System Life Cycle



- DMSMS can occur in any stage of the Standard System Life Cycle
- So what kinds of issues should you consider for managing DMSMS in the Standard System Life Cycle?



# Resolution Alternatives by Life Cycle Phase



Resolution	Pre-Systems Acquisition	Systems Acquisition	Sustainment
Open Systems Architecture	X		
Modification or Redesign	X	X	
Redefined Requirement	X	X	X
Commercial Item Substitution	X		
Modernization Through Spares	X	X	X
Design Techniques	X		
Breakout		X	
Bridge Buy		X	X
Life-Of-Type Buy		X	X
Contractor Requirement or Availability Guarantee		X	X
Existing Stock			X
Alternate Source			X
Existing Substitute			X
After-Market Vendor			X
Emulation			X
Government/Organic Fabrication Facility			X
Redesign (Major & Minor)			X
Reclamation			X
Technical Refresh			X
Use Early Warning Databases			X
VHDL			X
Early-Life-Cycle Parts Procurement			X

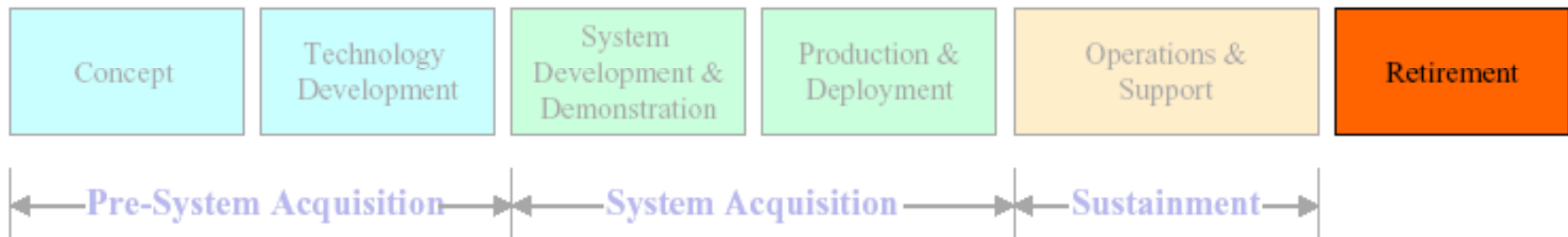


# Legacy Systems



**Your system sustainment phase can always be extended, and you may now be required to keep your systems operational longer.**

**So what do you, the manager, do?**



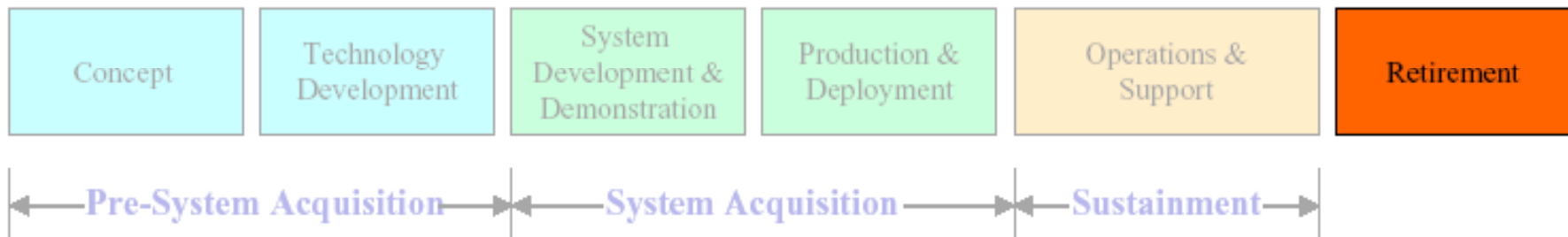




# Potential DMSMS Supporting Resources



- The DMSMS Management Team (DMT)
  - The DMT Plan
  - A Tool Chest
- } Used to identify and manage all components and assemblies
- Analysis Techniques - used to monitor the cost of a proactive program and the entire system for many factors such as operational readiness, phased maintenance, etc...
  - Determine Possible Solutions - Treat each redesign as a new system acquisition





# Importance of Being Proactive



- **DMSMS Program Managers must be proactive**
- **Active risk management plan**
- **Don't sit back and wait for things to happen**
- **Use a variety of different methods to combat DMSMS**





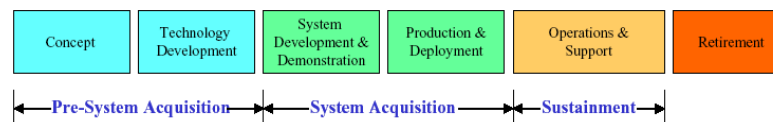
# Summary



- Introduction, and Background
- Pubs and Intensity Levels
- Standard System Life Cycle
- Legacy Systems
- Importance of Being Proactive



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Government Organic Fabrication Facility			X
Redesign (Major & Minor)			X
Reclamation			X
Technical Refresh			X
Use Early Warning Database			X
VHDL			X
Early-Life Cycle Management			X





# Teams, Tools, & Training





# Overview



- **DMSMS Teams**
- **Statistics and Metrics**
- **DMSMS Tools**
- **DMSMS Training**
- **Standardizing Teams, Tools, & Training**





# Introduction



- Where does one start when managing the DMSMS problem?
- What are the elements to a successful DMSMS management program?
- The size of your program depends on management buy-in and available, allocated resources.
- What Resources?

A functional DMSMS team  
The proper tools  
Relevant training







# DMSMS Management is a Team Activity



- **Lack of experienced or trained DMSMS personnel is always a concern**
- **There is no single tool that will solve DMSMS, Your most important assets is your team of professionals**





# The Team



- **Team should cover all disciplines**
- **DMSMS Management Team (DMT)**

Logistics

Engineering

Technicians

Support staff member

Etc.





# DASNL Guidance



- April 2005 Directive Mandating DMSMS Management Plans
  - Incorporated into all USN and USMC ILA documentation
  - Provided outline of what should be included
  - Included in the development of the DMSMS Plan Builder Tool



DEPARTMENT OF THE NAVY  
OFFICE OF THE ASSISTANT SECRETARY  
RESEARCH, DEVELOPMENT AND ACQUISITION  
1200 NAVY PENTAGON  
WASHINGTON, DC 20350-1000

APR 12 2005

MEMORANDUM FOR DISTRIBUTION

Subj: DIMINISHING MANUFACTURING SOURCES AND MATERIAL  
SHORTAGES (DMSMS) PROGRAM MANAGEMENT PLANS AND METRICS

Ref: (a) ASN(RD&A) Memorandum, DMSMS Management  
Guidance, 27 Jan 05

This memorandum amplifies reference (a) requesting Diminishing Manufacturing Sources and Material Shortages (DMSMS) management plans and metrics reporting for all cognizant Acquisition Category (ACAT) programs. **The plans and metrics will improve your awareness, attention and actions to address this multi-million dollar problem.** This process will provide the Department of the Navy important data to help refine DMSMS strategies, budgets, and controls and reduce Total Life Cycle System Management costs.

Attachment (1) provides guidance for developing DMSMS management plans and delineates the minimum information required for all levels of leadership to properly manage DMSMS. Appendix B of attachment (1) identifies DMSMS metrics and provides a format for reporting. Metrics will be collected periodically to determine trends. Programs that retire prior to January 2007 are not required to provide DMSMS management plans or metrics.

Please submit DMSMS management plans and metrics by 30 August 2005 to DASN Logistics via your Systems Command's representative (if applicable).

Nicholas Kunesh  
Deputy Assistant Secretary of the Navy  
(Logistics)



## Diminishing Manufacturing Sources and Material Shortages Management Plan Guidance

Published by the Office of the Assistant Secretary of the Navy  
(Research, Development & Acquisition) - Logistics

April 2005

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Attachment  
(1) DMSMS Management Plan Guidance



# DMSMS Plan Builder Tool

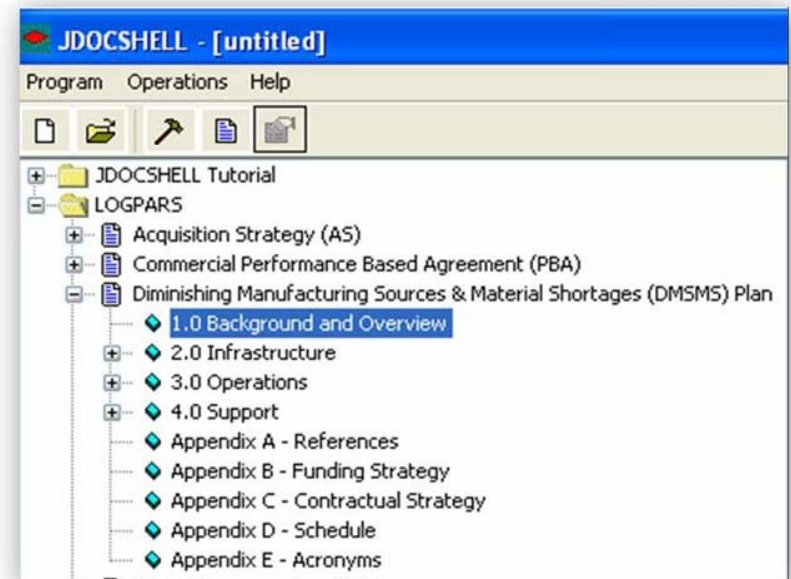


Tool automates development of a proactive DMSMS Management Plan

Answer questions tailored to your Service

Tool produces a Word® document with standard plan elements as outlined by DOD Working Group

You perform final editing to produce tailored, ready-to-use plan





# Statistics & Metrics



- **Metric**

Compares an output to a standard or a goal

- **Statistic**

Presents data without comparison

Both are of interest to senior leadership and DMT





## Examples of Typical Performance Measures for a Proactive DMSMS Program



Type	Source	Measure	Description
Statistic	Predictive Tool	Platform Health Picture	Monthly count of piece parts across the entire platform by DMSMS color code
		System Health Picture	Monthly count of parts, SRUs, LRUs, WRAs, and SRAs by color code in each system
	DMT DB	PR Generation	Cumulative generation of PRs
		LRU Assessment Report Generation	Cumulative generation of LARs
		PR Age & Location	Count of PRs at various DMT locations showing age of PRs at each location
		PRs by Type and Status	Breakout by solution type and status categories
Metric	DMT DB and Plan	PR Processing Time	Organizational PR durations versus time standards
	DMT DB and DMEA Data	Cost Avoidance	Estimate of proactive solution benefit of established solutions
Advanced Analyses	Multiple Sources	Business Case Analysis	Econometric comparison of proactive and reactive programs
		Ops Impact Analysis	Projected DMSMS - induced depletion of SRU, LRU, WRA, and SRA spares





# DMSMS Tools



- **No one tool will solve all of your DMSMS management problems**
- **The Business Case Analysis (BCA)**

Helps to make selections among alternative courses of action

Quantifies economic value in terms of Return on Investment (ROI) and Break Even Point (BEP)

Generates two alternatives: reactive approach and proactive case





# Operations Impact Analysis (OIA)



- Companion analysis to BCA
- Helps predict the effects of obsolescence on operational readiness

“If we do nothing about DMSMS, what happens to the weapons system?”





# Operations Impact Analysis



- **OIA sensitive to:**
  - Platform operating hourly forecasts
  - Failure or replacement rates of the boxes and boards
  - Obsolescence trends of the system components
  - Number of spares for each type of boxes and boards in the system





# OIA Output



- Matrix of Boxes (LRU/WRA) or Boards (SRU/SRA)
- Shows the “draw down” of the population of spares
- Used to prioritize future obsolescence mitigation projects

Name	Qty SRU/WRA per Platform	Initial Qty SRU Spares	2002	2003	2004	2005	2006	2007	2008
SRU <sub>1</sub>	1	1	G 1	G 1	G 1	Y 0	Y 0	Y 0	Y 0
SRU <sub>2</sub>	2	0	Y 0	R -1	R -1	R -1	R -2	R -2	R -2
SRU <sub>3</sub>	4	0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0
SRU <sub>11</sub>	1	0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0
SRU <sub>12</sub>	1	0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0
SRU <sub>13</sub>	1	0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0
SRU <sub>14</sub>	1	0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0
SRU <sub>15</sub>	1	0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0
SRU <sub>16</sub>	1	1	G 1	G 1	G 1	G 1	G 1	G 1	G 1
SRU <sub>17</sub>	1	0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0
SRU <sub>18</sub>	1	0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0
SRU <sub>19</sub>	1	0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0	Y 0
SRU <sub>20</sub>	8	0	Y 0	R -1	R -1	R -1	R -2	R -2	R -2

The “G1” for SRU<sub>1</sub> in 2002 means the spares posture for SRU<sub>1</sub> is green and there is one spare SRU<sub>1</sub>. In 2005, SRU<sub>1</sub> changes to “Y0” because the OIA predicts a draw down of 1 spare (due to obsolescence) leaving a balance of zero (“Yellow”). SRU<sub>2</sub> starts out “Yellow” no spares and changes to “R1” when the model indicates a draw down of SRU<sub>2</sub> from 0 to -1

How is this useful for you?



# BCA and OIA



- **Advanced Analysis Techniques:**
  - Synthesize input variables to infer conclusions
  - Model formulation must be rigorous
  - Can use as templates and guides
  - Many programs find them crucial to DMSMS management





# DMSMS Software Tools



- **Many tools available**
  - Predictive tools help status the health of the components
  - Reliability tools help determine the reliability and supportability of on-hand assets
  - Logistics, sustainment, and other tools are government owned and free to the user
  - Various other tools are commercially owned and may cost the program per each license







# Sample Government Tools



Tool	OPR	Fee?	Usage
ASSIST	DSP0	No	Specifications and standards
CDMD-OA	NAVSEA (DETPAC)	No	Configuration status accounting of systems and equipment
D200C	AFMC	No	LRU and SRU failure data
EMALL	DLA	No	Item of supply information and ordering (DLA Item Catalog)
GIDEP Notices	GIDEP	No	Historical and new discontinuance notices
JEDMICS	AFMC	No	Engineering drawing file system
MEDALS	DLA	No	Engineering drawing location and revision
Microcircuit Query	DSCC	No	Manufacturer part number to standard microcircuit drawings
PC Link	DLA	No	Access to service databases
REMIS	AFMC	No	Reliability data
SDW	DLA Headquarters	No	Discontinuation notices
Sunset Supply Base	NAVSEA	Yes	COTS piece part solutions with OEMs
WebFLIS	DLA	No	Federal total item record
WebLink	DLA	No	Web-based version of PCLink



# Sample Commercial Tools



Name	OPR	Usage
Haystack Gold®	IHS	Combines data from many databases
AVCOM®	BAE	Predictive tool and basic system analysis
Total Parts Plus®	Total Parts Plus, Inc	Predictive tool and basic system analysis
Q-Star®	QinetiQ	Predictive tool and basic system analysis
Sustain	Georgia Tech	System Sustainment Tool
Relex®	Relex	Reliability Tool
PRISM®	SRC	Reliability Tool
ILS®	ILS	Technical Research Tool
PartMiner®	PartMiner	Technical Research Tool



# DOD DMSMS Knowledge Sharing Portal (DKSP) and Training



- **The DKSP**

You can obtain:

- Training
- Research problem parts
- Regulations or Publications
- Many other Functions...

Goal is to eliminate redundant processes, tools, and databases

Continuous development





# DKSP Web Site



- **DKSP**

Sponsored by DOD

[www.dmsms.org](http://www.dmsms.org)

Good place to start

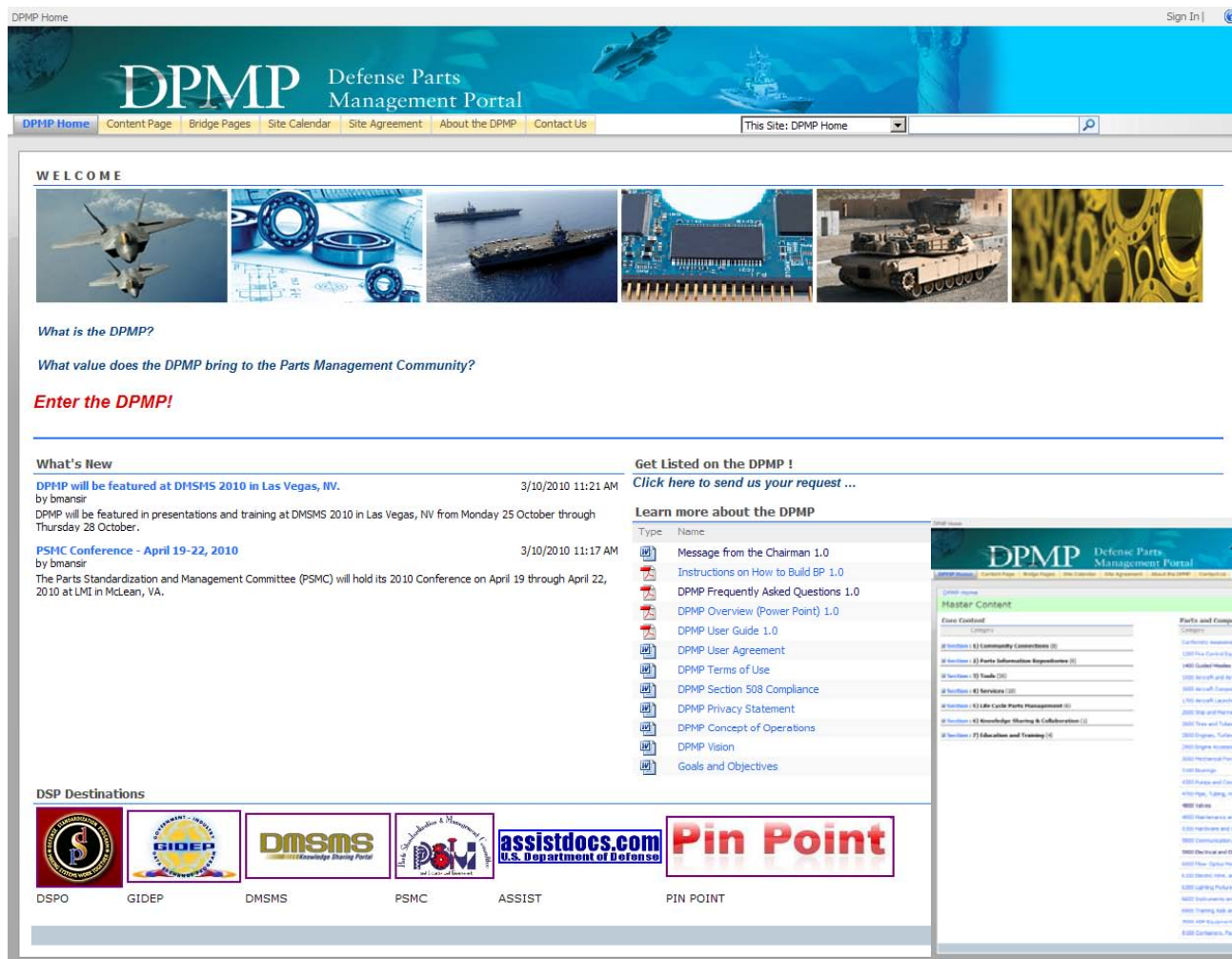




# What is the DPMP?



- The Defense Parts Management Portal (DPMP) is a public website brought to you by the Parts Standardization and Management Committee (PSMC) to serve the defense parts management community.
- The DPMP is a new resource, a new marketplace, and a “one-stop shop” for parts management resources.
- It is a navigation tool, a communication and collaboration resource, and an information exchange. It gives you quick and easy access to the resources you need, saves you time and money, connects you to new customers or suppliers, and assists you with finding the answers you need.



<https://dpmp.lmi.org>





# Available DMSMS Training



- Developed in partnership with DLA, DAU, Karta and ARINC
- Computer based training courses available on the DAU Continuous learning website
  - <https://learn.dau.mil/html/clc/Clc.jsp>
- Five Computer Based Training (CBT) Modules
  - DMSMS Fundamentals (CLL 201)
  - DMSMS for Executives (CLL 202)
  - DLA DMSMS Essentials (CLL 203)
  - DMSMS Case Studies (CLL 204)
  - DMSMS for Technical Professionals (CLL 205)







# Standardizing Teams, Tools, & Training



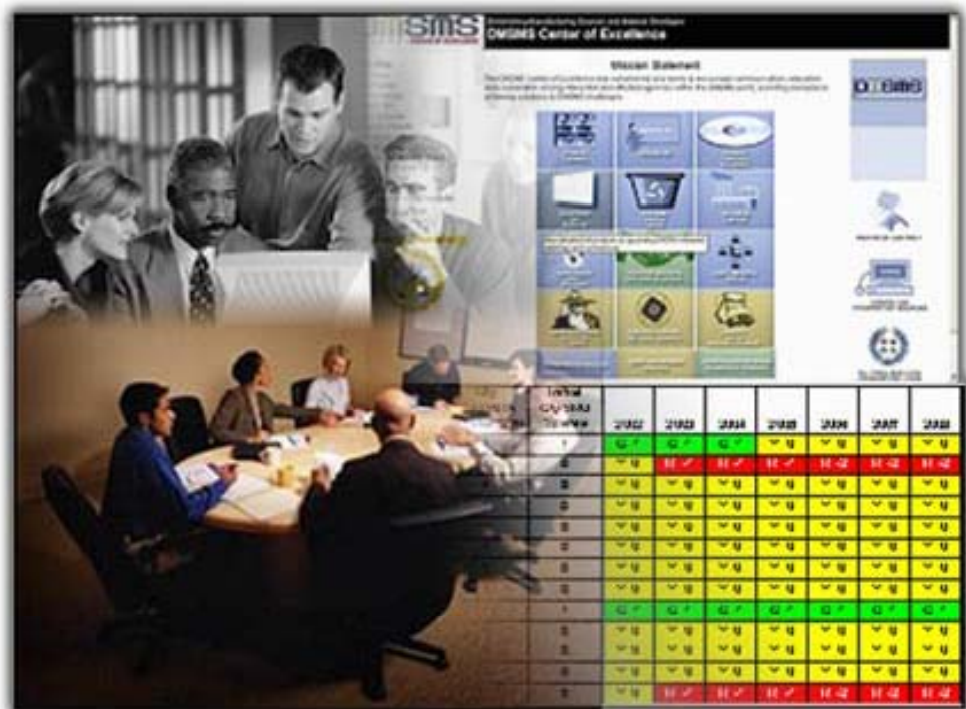
- **Total Life Cycle System Management (TLCSM)**
  - Requires programs to develop a plan and supporting business case
  - PBL is the preferred method
- **PBL Components**
  - Performance-Based Agreements
  - Product Support Integrator
  - Support Metrics and Incentives
- **The Goal:**
  - Standardizing a common approach to DMSMS management
  - Develop and make training available to help educate personnel on the tools, processes, programs, and other issues used to resolve DMSMS



# Summary



- DMSMS Teams
- Statistics and Metrics
- DMSMS Tools
- DMSMS Training
- Standardizing Teams, Tools, & Training





# Data and the BOM

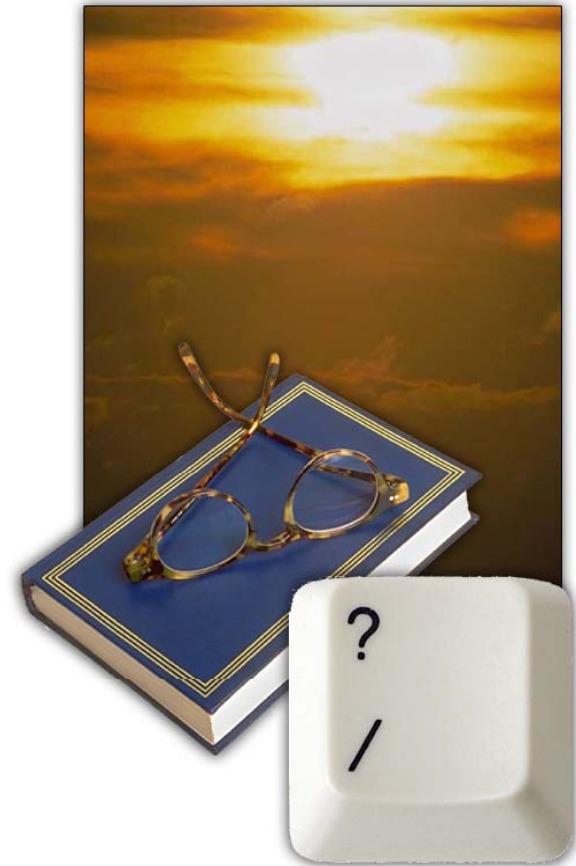




# Overview



- **Defining the Bill of Materials (BOM)**
- **Levels of DMSMS Management**
- **COTS**
- **Managing DMSMS and COTS**
- **Additional Data Configurations**





# Introduction



- **DMSMS Progress**

Ever present Impediment

Progress has been

More progress is needed

Lack of Accurate/Complete BOMs





# Data and the BOM



- **Bill of Materials (BOM):** a listing of parts and required quantities, electronic, electrical, mechanical and materials, used to identify repair parts or parts needed to fabricate (produce) a system or assembly
  - A “Flat File BOM” is a BOM that lists parts without indenturing relationships
  - An “Indentured BOM” is a BOM that shows the relationships of components from component to board, to box, to system, generally in a top down break out format





# Flat File BOM



CAGE	Part Number (P/N)
49956	G123456-1
81349	M38510/20302BEA
82577	3100024-54
01295	SNJ54S00

Flat File BOM Sample



# Indentured BOM



System CAGE	System P/N	Box CAGE	Box P/N	Card CAGE	Circuit Card P/N	Component CAGE	Component P/N
49956	System	07187	Box A	07187	Circuit Card 1	49956	G123456-1
49956	System	07187	Box A	07187	Circuit Card 1	81349	M38510/20302BEA
49956	System	07187	Box A	09344	Circuit Card 2	82577	3100024-54
49956	System	07187	Box A	09344	Circuit Card 2	01295	SNJ54S00
49956	System	09344	Box B	82577	Circuit Card 1	49956	G123456-1
49956	System	09344	Box B	82577	Circuit Card 1	81349	M38510/20302BEA
49956	System	09344	Box B	49956	Circuit Card 2	82577	3100024-54
49956	System	09344	Box B	49956	Circuit Card 2	01295	SNJ54S00

Indentured BOM Sample



- **Many types of data required to manage the DMSMS problem**

Some of these data are not available routinely, or are not required to be maintained by regulation

For your specialty items, like application specific integrated circuits (ASICs), you need the complete drawing packages to potentially re-procure the part in the absence of the original source

- **When lacking BOM data, we don't know what is in the systems without some very labor-intensive and costly research**



- **Common missing component is complete current configuration BOM**
  - Purchase from OEM or develop from available data
  - Purchase Rights to Review the Data as needed
- Enables proactive DMSMS management





- **Treat each and every redesign you pursue as if it were a new system acquisition**
- **The team should review the BOM for a new card or box and ensure the manufacturer isn't using materials or parts that are about to become obsolete**
- **Identify and implement the most cost-effective solution: solution types and relative costs that give you a "cost avoidance"**

*There is a difference between a cost avoidance and a cost savings, and the interpretation is sensitive.*



# Levels of Management



- **At what level should I manage my DMSMS problem?**

Platforms

Boxes

Boards

Components

- **How can I best support the mission of the warfighter?**







- You can't status the board without the component
- You can't status the box without the board
- You can't status the system without the box
- You need the component level health to describe the health of each tier above the component





# Commercial-Off-the-Shelf (COTS)



- No degradation in reliability or performance
- Reduced cost
- Much of the test equipment used for repair and maintenance of our military systems is considered COTS





- **What is COTS?**

Toilet Paper

Mops and Brooms

Micrometer

Digital Multi-meter

Signal Analyzer

Oscilloscope

Diesel Fuel





# Managing DMSMS and COTS



- **Unexpected problems with COTS**

The component life cycle was greatly accelerated

To include COTS equipment in a proactive DMSMS management program, parts lists must be entered into a predictive tool

Most COTS equipment isn't cycled through normal provisioning process

May require manually creating a listing of parts to potentially ensure availability for a number of years

Might need to call known vendors on a monthly basis to determine the most current status

No predictive tools that specialize in COTS components, but with a large enough team and budget, it can be cost effective



- **COTS usually come with a service manual**
- **IPB in back of manual can serve as a pseudo-BOM**
- **IPB may be of no use if parts are called out as OEM part numbers**
- **For COTS items, there is rarely any type of data available**
- **It is getting harder and harder to get industry to be sensitive to the government's needs**





- **If you decide to use COTS, look at:**

Dependence upon warranty

Contractor logistics support

Organic repair

Periodic replacement to keep it operational



**Many of these considerations are the same for military system acquisition, meaning you manage COTS in the same manner**





# Additional Data Considerations



- **We need system acquisition reform**
- **We have too many:**
  - Vendor Item Drawings
  - Specification Control Drawings
  - Source Control Drawings
- **Ensure that only the absolute minimum number of special drawings is created**





- **Do you have a BOM for each of your systems?**
  - If not, you may be forced into creating one from IPBs, which can:
    - Be costly
    - Take time
    - Introduce errors
    - Cause you to miss low-cost support opportunities
- **TLCSM and PBL will help you eliminate some of the headaches**
- **But maintain caution in deciding to award long-term DMSMS management support to a prime manufacturer**





# Summary



- **Defining the Bill of Materials (BOM)**
- **Levels of DMSMS Management**
- **COTS**
- **Managing DMSMS and COTS**
- **Additional Data Configurations**





# Financial Resources





# Overview



- **Financial Resources**
- **OSD Methodology**
- **Business Case Analysis**





# Introduction



- **What if you had unlimited financial resources?**
- **You would have:**
  - Unlimited spare parts
  - Plenty of Personnel
  - Money to solve all problems
- **Unfortunately, we don't live in a utopian world!**
- **You must plan and work to secure the resources required to establish some sort of a proactive DMSMS management program for your programs**







# Financial Resources



- **No current DMSMS funding line in the federal budget**
- **Each program must determine their needs and how they can legitimately obtain the supporting resources**
- **Those who have been successful, discovered that there are two parts to funding an issue:**

What “color of money” is needed

Where you get the funding to implement your identified solutions





- **You are not going to be handed a sum of money in your normal budget, thus:**

Understand your DMSMS problem when allocating your resources

Plan for DMSMS management in your initial budget planning

Take your issues and concerns through the established chain of command

Tell it like it is, but recommend solutions to the problems identified





# OSD Methodology



- **Cost avoidance**

Find solutions early

Cost Metrics data

Average costs

OSD methodology



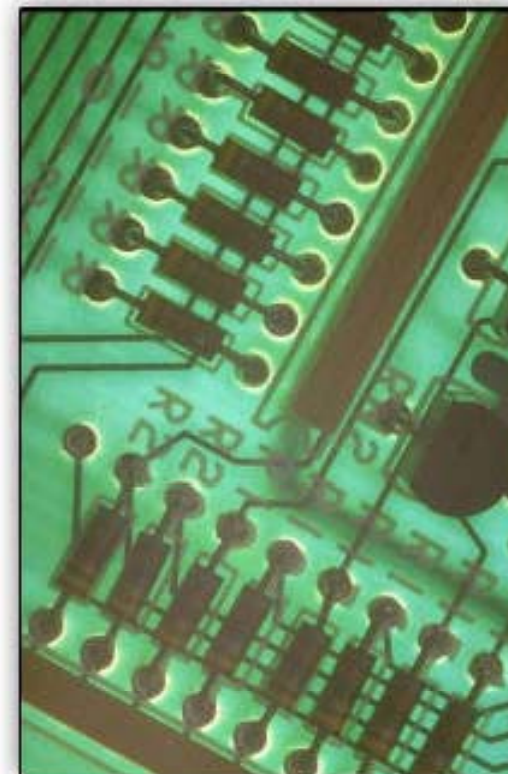


## Example circuit card:

OSD average cost “substitute”	\$25K
Next most expensive “aftermarket”	\$62K
Difference	\$37K

### If “aftermarket” not feasible:

OSD average cost “substitute”	\$ 25K
Next most expensive “redesign”	<u>\$159K</u>
Difference	\$134K



Similar calculations are planned for material DMSMS resolutions. There are currently no developed materials solutions cost guides available at this time; current microelectronics cost guide will be adapted as practical for non-electronics DMSMS resolution analysis.



# Sample Program Cost Avoidance



Solution Type	Solution Status	PPR Count	Cost Avoidance Estimate
Emulation	Unfunded	11	
Obtain Firmware	Firmware Solution In Work	2	\$60,000
	Unfunded	7	
Redesign NHA	Unfunded	10	
Redesign Part Substitute Multi-year Buy	Engineering Solution Complete	5	\$2,700,000
	Engineering Solution Complete	1	\$55,000
	MYB Complete (with PPRs)	54	\$1,800,000
	MYB Complete (no associated PPR)	500	\$17,000,000
	Other	1	
	Unfunded	298	\$0
No Support Impact	Approved Alternate Available	71	\$200,000
	Part No Longer Used	17	
Reclamation	Reclaimed Parts On-hand	1	\$0
	Transfer Complete	9	\$27,000
Transfer Assets	Transfer Pending	17	
			\$21,842,000



# Business Case Analysis (BCA)



- **BCA**

Helps to make selections among alternative courses of action

Generates two alternatives:

- 1) The reactive approach
- 2) The proactive case







# Reactive Approach



The Equipment Specialist (or equivalent) processes and reacts to Discontinuation Notices

Problems go unnoticed until repair part is needed





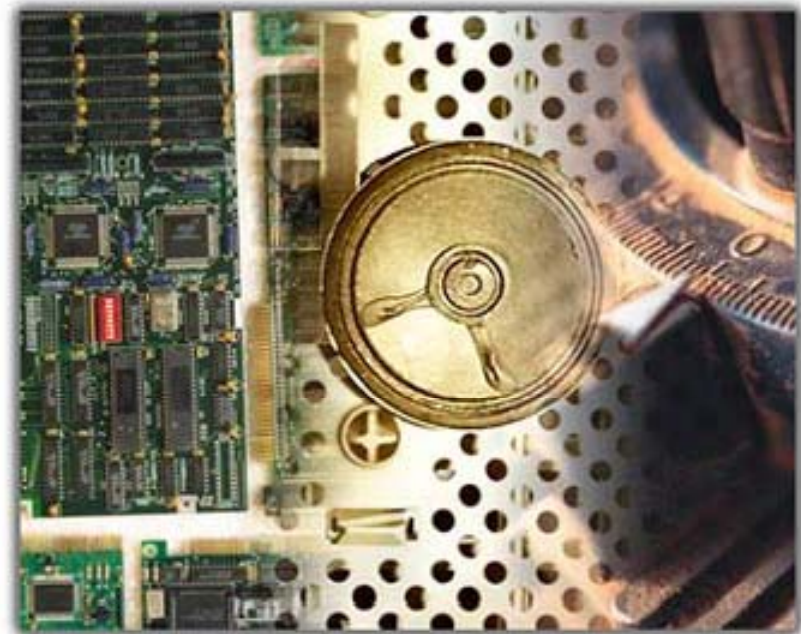
# Proactive Case



DMT identifies potential  
obsolete parts

Shortages preemptively  
resolved

Problems corrected before  
they emerge





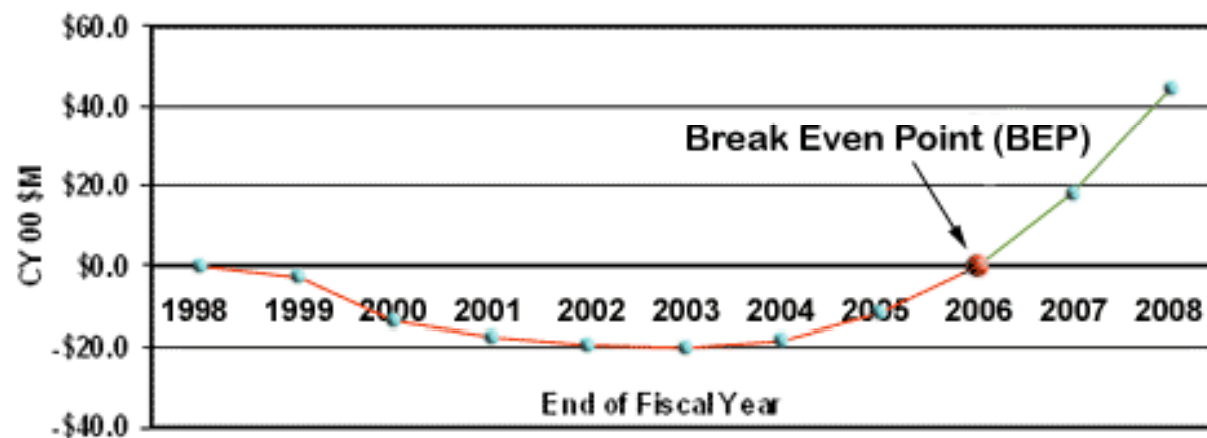
# Break Even Point



Shows the payback period of an alternative

Plots the cumulative benefit less the cumulative operations cost

Shows the difference between the reactive and proactive approach costs





# BE Data



## Sample Economic Analysis Summary<sup>1</sup>

Item	Reactive (\$M) <sup>2</sup>	Proactive (\$M) <sup>2</sup>	Notes
DMSMS Program Costs	N/A	\$30M	
DMSMS Solution Costs	\$180M	\$65M	
Total	\$180M	\$95M	
Benefit		\$115M	=\$180M-\$65M
Break Even Point		Sep FY 2006	see BEP Plot (previous slide)
Cost to Benefit Ratio		3.2	=\$95M/30M
Return on Investment		2.2	=(95M-30M)/30M
Net Value		\$85M	= \$180M-\$95M

<sup>1</sup>Through a particular year

<sup>2</sup> In equivalent year \$



# Summary



- **Financial Resources**
- **OSD Methodology**
- **Business Case Analysis**





# Concluding Thoughts



Lack of experienced or trained DMSMS personnel and support (Management Buy-in)

Not enough human resources to assign to all DMSMS duties (Teams, Tools, & Training)

Lack of indentured Bills-of-Materials (BOMs)

Never enough money (Financial Resources)

Counterfeiting is an ever present danger







# Keys to Success



Management “buy-in” or commitment

Program centered around a team, tools, & training

Bill-of-Material (BOM)

Financial resources





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